

THE
ONTARIO WATER RESOURCES
COMMISSION
WATER POLLUTION SURVEY
of the
TOWN OF MATTAWA

July, 1965

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ONTARIO WATER RESOURCES

COMMISSION

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OF THE

TOWN OF MATTAWA

JULY, 1965.

DIVISION OF SANITARY ENGINEERING

ONTARIO WATER RESOURCES COMMISSION

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ONTARIO WATER RESOURCES COMMISSION

INTRODUCTION

A water pollution survey was carried out in the Town of Mattawa on June 14, 1965. The purpose of this survey was to locate and record all significant sources of water pollution within the town. Such surveys are performed routinely and upon request, by the Ontario Water Resources Commission as a basis for evaluating all existing and potential sources of pollution. Where sources of pollution are found, corrective action is requested by the Commission.

The information received from the town officials during this investigation is gratefully acknowledged.

I GENERAL INFORMATION

The Town of Mattawa, being composed of the villages of Mattawan, Rosemont, Rankinville, and Timmins ville, is located at the confluence of the Mattawa and the Ottawa Rivers in the District of Nipissing. A population of 3,272 is concentrated within the nucleus of these four villages.

Mattawa lies within the Mattawa River and the Ottawa River watershed, with the Mattawa River flowing through the town in an easterly direction. To the north of the Mattawa River and west of the Ottawa River, an overburden of sandy soil is predominant making septic tank drainage good. However, to the south of the Mattawa River and west of the Ottawa River, a silty clay overburden prevails resulting in poor septic tank drainage due to the impermeability of the soil.

II WATER USES

1- Municipal Water Systems

Water is supplied to the town untreated from two deep drilled wells having pumping capacities of 350 gpm and 750 gpm. The water is pumped directly to a 150,000 gallon ground storage reservoir and then repumped to the distribution system. No records of water pumpages are kept.

2- Private Water Systems

a) Mattawan Dairy

Water from the Mattawa municipal supply is used at the Mattawan Dairy. However, during the summer months, sweet water tanks are also used to produce a lower temperature in the water in the municipal supply for use at the dairy.

b) Valois Motel

The Valois Motel has no connection with the municipal water supply, and obtains water from three dug wells. No treatment is provided.

3- Industrial Water Supplies

Weyerhaeuser Company

Water for potable purposes at this industry is obtained from the municipal water system. Water for industrial usage is pumped from Boom Creek. No consumption data could be obtained. Also, a spring-fed creek has been dammed and the resulting pond is used as a reserve source of water supply for the industry.

4- Recreational

The only convenient swimming area for the public is the Mattawa Beach on the south shore of the Mattawa River, between Poplar Street and Hardman Street. In recent years, the Medical Officer of Health for Mattawa has ordered the beach posted to inform the public that the water was unsafe for swimming.

Boating and fishing are other sources of recreation on the Mattawa River and the Ottawa River.

III SEWAGE DISPOSAL

1- Municipal

About 25% of Mattawa's population is served with sanitary sewers while the remainder relies on septic tanks and sub-surface tile drainage systems and private privies.

Sanitary wastes are directed to a waste stabilization pond via a system of collector sewers and a sewage pumping station. The treatment units consist of three cells with a total area of 18 acres. Two of the cells may be operated in parallel followed by another cell in series. There were no wastes being discharged from the system at the time of the inspection. However, the receiving stream for these lagoons is the Mattawa River.

Several residences that are not achieving satisfactory sewage disposal exist in the area serviced by sanitary sewers. The Town of Mattawa should proceed with a vigorous sanitary sewer connection programme. Where the service exists, the residents should be encouraged to use it.

An extension of the present sewage works is planned. The Ontario Water Resources Commission has given a Preliminary Certificate of Approval for the construction of sanitary sewers on George Street and Mattawan Street. Since the Town of Mattawa wishes to make this a Commission project, a Resolution of Council formally requesting that the Commission undertake the proposed extension as a project must be forwarded to the Commission.

2- Private

a) Valois Motel

The Valois Motel is located east of Mattawa on Pembroke Road. The sanitary waste from the motel, which can accommodate up to 95 people, is directed to a septic tank. The effluent is discharged to the Ottawa River. There is no sub-surface tile bed.

IV DRAINAGE

Storm sewers are provided for portions of the town while the remainder depends on open ditches to drain storm water.

V REFUSE DISPOSAL

The refuse disposal site is located east of Mattawa between Highway No. 17 and the Ottawa River. Refuse collected from the town is burned regularly and then pushed over the dump face and covered. The section of the dump nearest to the Ottawa River has been fenced off and refuse is presently being dumped away from the river to eliminate the possibility of any material gaining access to the river.

VI INDUSTRIAL WASTE DISPOSAL

1- Weyerhaeuser Company

The Weyerhaeuser Company, located at John Street and Henry Street, is involved with wood processing. Waste water flows to Boom Creek, a tributary of the Mattawa River, via an open ditch.

Sanitary wastes from the industry are disposed by means of a septic tank. It was not known at the time of the investigation if there was a sub-surface tile bed. It was learned that the septic tank now serving the 200 employees is too small. Wastes, characteristic of septic tank effluent, were noticed on the ground surface.

2- Mattawan Dairy

The Mattawan Dairy is located on Pembroke Road at Brook Street. This firm is engaged in the processing of milk and milk products. Wash water and milk wastes are discharged to a two-compartment log cesspool along with the sanitary wastes. The cesspool discharges the effluent to a small watercourse north of Pembroke Road which drains to the Ottawa River.

VII DISCUSSION OF LABORATORY RESULTS

The laboratory results of the bacteriological examinations and the chemical analyses of samples collected from the watercourses and outfalls are included in Table I which is appended to this report. Descriptions of the tests and an outline of the OWRC objectives are also included.

Samples, collected from the Valois Motel septic tank final effluent, indicated that the 5-Day BOD and suspended solids content of the wastes were in excess of the OWRC recommended maximum objective of 15 ppm for both concentrations. It was revealed by the bacteriological examinations that the waste contained 240,000+ *Escherichia coli* forms per 100 ml.

The sample collected from the local watercourse downstream from the Mattawan Dairy indicated that the coliform concentration was in excess of the OWRC maximum objective of not greater than 2,400 coliform organisms per 100 ml. Examination of the sample revealed a total coliform count of 240,000+ per 100 ml.

The sample, collected from the ditch carrying industrial wastes from the Weyerhaeuser Company revealed a total coliform count of 110,000 per 100 ml. This is in excess of the Commission objective of not greater than 2,400 coliform organisms per 100 ml. The 5-Day BOD content of the waste was 13.0 ppm. This too is in excess of the OWRC maximum objective of not greater than 4 ppm.

The water samples, collected from Boom Creek downstream from the ditch, revealed that the 5-day BOD and coliform count were within the OWRC objectives.

VIII SUMMARY AND CONCLUSIONS

A municipal water pollution survey was conducted in the Town of Mattawa on June 14, 1965.

Mattawa has a municipal water supply pumped from two drilled wells and a sewerage system consisting of a lagoon of 3 cells.

The municipal refuse disposal site was satisfactory at the time of the last OWRC inspection on June 14, 1965.

Waste discharges from the Weyerhaeuser Company are impairing the quality of water in Boom Creek and consequently the Mattawa River. However, the proposed extension of the sewer system would service this industry thereby eliminating this pollution problem.

The method of sewage disposal employed by the Valois Motel is not satisfactory. Mr. A. Valois, Proprietor, reported that this condition will be corrected.

Mr. G. Dupras, Owner of the Mattawan Dairy, reported that he would endeavour to achieve a more satisfactory method of waste disposal to alleviate the pollution of the local watercourse.

IX RECOMMENDATIONS

1. The Town of Mattawa should continue to extend the sewer system.
2. Where instances of faulty sewage disposal systems occur in areas that are already sewered, the offenders should be requested to connect to the sanitary sewer.
3. The Valois Motel should discontinue the practice of discharging polluting wastes to the Ottawa River.

4. The Mattawan Dairy should improve their method of waste disposal.

All of which is respectfully submitted.

District Engineer

C. S. McIntyre
for H. Browne.

Approved by

J. R. Barr,
Assistant Director,
Division of Sanitary Engineering.

bw

Prepared by:

G. K. Boretski.

APPENDIX

THE SIGNIFICANCE OF LABORATORY RESULTS

The OWRC objectives for surface waters in Ontario are as follows:

5-Day BOD - not greater than 4 ppm.
M.F. Coliform Count - not greater than 2,400 coliforms
per 100 ml.

Phenolic equivalents:

Average - not greater than 2 ppb.
Maximum - not greater than 5 ppb.
pH - 6.7 to 8.5.

Adequate protection for these waters, except in specific instances influenced by local conditions, should be provided if the following waste discharge concentrations are obtained.

<u>ITEM</u>	<u>CONCENTRATION</u>
5-Day BOD	not greater than 15 ppm.
Suspended Solids	not greater than 15 ppm.
Phenol	not greater than 20 ppb.
pH	5.5 to 10.6
Iron	not greater than 17 ppm.
Oil	not greater than 15 ppm.

EXPLANATION OF LABORATORY RESULTS

Biochemical Oxygen Demand (BOD)

The biochemical oxygen demand test indicates the amount of oxygen required for stabilization of the decomposable organic matter found in sewage, sewage effluent, polluted waters, or industrial wastes, by aerobic biochemical action. The time and temperature used are five (5) days and 20°C, respectively.

Solids

The analyses for solids include tests for total, suspended, and dissolved solids. Total solids is a measure of the solids in solution and in suspension. Suspended solids indicate the measure of undissolved solids of organic or inorganic nature whereas the dissolved solids are a measure of those solids in solution.

Land erosion, sewage and industrial wastes are significant sources of solids. Domestic sewage contains about 0.2 lbs of suspended solids per capita per day. Solids in industrial wastes vary with the type of industry.

The effects of suspended solids in water are reflected in difficulties associated with water purification, deposition in streams, interference with navigation, and injury to the habit of fish.

Turbidity

Turbidity is a measure of the fine suspended solids in water, such as silt and finely divided organic matter. Where suspended solids values approach 20 parts per million or less, the results are usually reported as turbidity in "Silica Units".

Bacteriological Examination

Coliform organisms are normal inhabitants of the intestines of man and warm-blooded animals. They are always present in large numbers in sewage and are, in general, relatively few in number in other stream pollutants.

Oil and Ether Soluble Materials

These include oil and all other ether soluble materials such as tarry substances and greases. The presence of these pollutants renders water difficult and impractical to treat either for industrial or domestic use. Oils make the stream unsightly and the water unfit for bathing.

Table 1-1

Sampling Point No.	Description	Date	Total Coliform Organisms	E. Coli.	5-Day BOD (ppm)	S O L I D S			Remarks
						Total (ppm)	Susp. (ppm)	Diss. (ppm)	
0-335.9 P	Valois Motel waste discharge 6" asbestos-cement outlet.	Jun.14/65.	240,000+	240,000+	390.0	668	112	556	
0-336.0	Ottawa River downstream from Mattawa.	Jun.14/65.	230	23	1.3	56	4	52	
OT-0.0	Tributary of Ottawa River.	Jun.14/65.	240,000+	240,000+	1.6	248	3	245	Contains Mattawan Dairy Waste Discharge
OT-0.0 I	Mattawan Dairy Waste Discharge Outlet.	Jun.14/65.	NOT SAMPLED						
0-336.5	Ottawa River upstream from Mattawa.	Jun.14/65.	75	9.1	1.3	70	7	63	
M-0.1	Mattawa River @ Bridge.		230	43.0	0.7	34	1	33	
M-0.1 W-1	12" Concrete Storm Sewer at First St.	Jun.14/65.	NO FLOW NOTED						
M-0.1 W-2	12" Corrugated Storm Sewer at Pembroke Rd.	Jun.14/65.	NO FLOW NOTED						

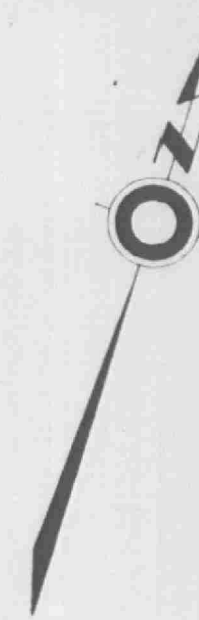
Table 1-2 (Continued)

Sampling Point No.	Description	Date	Total Coliform Organisms	E. Coli.	5-Day BOD (ppm)	S O L I D S			Remarks
						Total (ppm)	Susp. (ppm)	Diss. (ppm)	
M-0.1 W-3	12" Corrugated Storm Sewer @ Second Street.	Jun.14/65.	NO FLOW NOTED						
M-0.1 W-4	12" Corrugated Storm Sewer @ Pine Street.	Jun.14/65.	NO FLOW NOTED						
M-0.1 P	2" Iron Private Drain.	Jun.14/65.	NO FLOW NOTED						
M-0.2 W-1	12" Corrugated Storm Sewer @ Third Street.	Jun.14/65.	NO FLOW NOTED						
M-0.2 W-2	12" Corrugated Storm Sewer @ Poplar Street.	Jun.14/65.	NO FLOW NOTED						
M-0.2 W-3	12" Corrugated Storm Sewer @ Fourth Street.	Jun.14/65.	NO FLOW NOTED						
M-0.2 W-4	12" Corrugated Storm Sewer @ Fifth Street.	Jun.14/65.	NO FLOW NOTED						
M-0.2	Public Beach	Jun.14/65.	23	23					
M-0.2	Public Beach	Jun.14/65.	75	15					
M-0.2	Public Beach	Jun.14/65.	93	23					

Table 1-3 (Continued)

Sampling Point No.	Description	Date	Total Coliform Organisms	E.Coli.	5-Day BOD (ppm)	S O L I D S			Remarks
						Total (ppm)	Susp. (ppm)	Diss. (ppm)	
M-0.7 T	Water Pollution Control Plant outlet.	Jun.14/65.	NO FLOW NOTED						
BC-0.1	Boom Creek upstream from confluence with Mattawa River.	Jun.14/65.	2100		1.6	44	6	38	
BC-0.2	Boom Creek upstream from drainage ditch.		430		1.1	60	13	47	
D-0.0	Drainage ditch up- stream from confluence with Boom Creek.		110,000		13.0	144	34	110	
D-0.1 I	Outlet from Weyerhaeuser Company.		NOT SAMPLED						

ROSEMOUNT



LEGEND

- M-O-I - STREAM AND MILEAGE AT SAMPLING POINT
- M-O-I
P - OUTFALL SHOWING STREAM AND MILEAGE
- TYPE OF OUTFALL
- D - DITCH
- I - INDUSTRIAL SEWER
- P - PRIVATE SEWER
- T - SEWAGE TREATMENT PLANT
- W - STORM SEWER
- _____ - EXISTING SEWAGE SYSTEM

ONTARIO WATER RESOURCES COMMISSION

TOWN OF MATTAWA
WATER POLLUTION SURVEY

SCALE	
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